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NOTES OF TWO CASES OF SQUINT AND ONE OF ESOPHORIA, DUE TO ANISOMETROPIA, IN WHICH THE MUSCULAR ANOMALIES WERE CURED BY GLASSES; ALSO OF A CASE OF ESOPHORIA OF UNUSUAL DEGREE.[1]

BY SAMUEL THEOBALD, M. D.,

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The cases of concomitant squint which may be cured by means of glasses are, comparatively speaking, rare, and bear but a small proportion to those which can be corrected only by operative treatment. In my experience they belong almost always to one of two classes—either they are squints which are not yet fully formed, being intermittent in character, occurring only during tension of accommodation, or they are squints that usually have been long established, but which, owing, probably, to a decline in the relative strength of internal or external recti muscles, as the case may be, have already shown a tendency to lessen in extent. The existence of ani-

[1] A paper read before the Johns Hopkins Hospital Medical Society, Dec. 2, 1889.

sometropia of considerable degree may also be regarded as a circumstance favorable to the non-operative correction of squint, because, as I have heretofore pointed out,[1] the squinting eye under such circumstances is less apt to become amblyopic than when the refraction of the two eyes is the same, since the necessarily indistinct image which its retina receives gives rise to less confusion, and is, therefore, not so apt to be mentally suppressed. The not infrequent habit of anisometropic individuals of using one eye in near and the other in distant vision also tends to a like result. But, besides this, a new and powerful stimulus to binocular fixation is supplied when, by the aid of glasses, images of equal distinctness are projected upon both retinæ. In the three following cases the good results which followed so promptly upon the adjustment of glasses must be ascribed in a great measure, I think, to this latter agency.

Case I.—Miss W., æt. about about 30 years, complained of persistent asthenopia; exhibited in distant vision a slight convergent squint of the right eye, which defect had been observed for some years. In near vision, however, she was found to depend entirely upon the right eye, holding the page, in reading, at a very short distance. With this eye she could read J. No. 1 easily, but could do so with the left eye only by a considerable effort. Upon examination, compound hypermetropic astigmatism, against the rule, was found to be present in the left eye; compound myopic astigmatism, against the rule, in the right eye.

For distant vision glasses, which fully corrected the total defect of each eye, were prescribed, as follows:

Left eye, $+{}^{1}/_{24}$ s $=-{}^{1}/_{48}$ c. ax. 90°.

Right eye, $-{}^{1}/_{13}$ s $=-{}^{1}/_{48}$ c. ax. 95°.

For near vision the myopia of the right eye was only partially corrected, and the hypermetropia of the left eye sufficiently over-corrected to make the far point of each the same.

[1] The amblyopia of squinting eyes: Is it a determining cause or a consequence of the squint? Transactions of the American Ophthalmological Society, 1886, and the Medical News, September 4, 1886.

These gave at once binocular fixation in near vision; but in distant vision the fixation was still only with the left eye, the right, as before, squinting slightly inward. The glasses, however, were worn systematically, and within a few weeks the squint had entirely disappeared, and careful testing at this time, and six months later, showed binocular fixation in distant, as well as in near vision.

CASE II.--Mrs. M., æt. 42 years, had a very decided divergent squint of the left eye. In distant vision it was of high grade, in near vision variable in degree, occasionally disappearing entirely, so that she would, at times, obtain momentary binocular fixation. In the non-squinting right eye a simple myopic astigmatism was discovered, requiring for its correction $-{}^{1}/_{42}$ c. ax. 80°; in the left eye, a simple hypermetropic astigmatism, corrected by $+{}^{1}/_{72}$ c. ax. 40°. As she was not able to fuse the retinal images of a light placed at a distance of 20′ until prisms amounting in the aggregate to 52° (bases in) had been placed before the eyes, I had little hope that binocular vision for distance would be restored without a tenotomy of the external rectus of one or both eyes, and still less that, if restored, it would be unattended by muscular asthenopia. However, as she was averse to an operation, if it could possibly be avoided, and as the tests for muscular insufficiency gave, for the reading distance, most contradictory results, I simply prescribed the lenses which I have mentioned, directing that they be tried for near as well as for distant vision, my expectation being that in near vision they would probably restore binocular fixation, while in distant vision they would simply correct the astigmatism of the fixing eye, and thus relieve the asthenopic symptoms. To my surprise, when the patient reported a week later, after having worn the glasses but four or five days, I found that with them she had binocular fixation both in distant and in near vision, and, what was more surprising still, was, in distant vision, entirely free from asthenopia. Two months later this condition was maintained, and she reported the glasses as very satisfactory in distant, but not so comfortable in near vision. I then prescribed for reading

and sewing the same cylinders which I had previously ordered combined with $+^{1}/_{36}$ s., and these gave her entire satisfaction.

CASE III.—Dr. M., æt. about 30 years, engaged in teaching, applied to me because of troublesome asthenopia. He was found to have compound myopic astigmatism in each eye, with well-marked anisometropia, the astigmatism being of low grade and equal in the two eyes, the myopia being nearly three times as great in one eye as in the other. The Graefe test, with the ametropia uncorrected, showed esophoria, or insufficiency of the external recti muscles, at 20′ of 5°; with the myopia and astigmatism corrected this was increased to $6^{1}/_{2}°$. There was also left hyperphoria of 1° to $1^{1}/_{2}°$. Although there was no squint and evidently binocular fixation, he depended chiefly upon his less myopic, left eye, in both distant and near vision, using his accommodation so as to obtain in it the distinct retinal image. Glasses for constant use were prescribed as follows:

L. eye $-^{1}/_{72}$ s.$= -^{1}/_{144}$ c. ax. 135°⌒Prism 2° base out.

R. eye $-^{1}/_{20}$ s.$=-^{1}/_{144}$ c. ax. 45°.

These gave V.$=^{20}/_{XX}$— and No. 1, and soon relieved his asthenopia.

The interest of the case, however, resides in the fact that an examination, made after the glasses had been worn with satisfaction for five months, showed that the insufficiency of the externi had almost entirely disappeared. Indeed, the Graefe test, at 20′, with the ametropia corrected, at times gave no insufficiency whatever, though occasionally an esophoria of 1° to $1^{1}/_{2}°$ would manifest itself, the same test, under like conditions, having shown at the time the glasses were prescribed, as I have stated, $6\ ^{1}/_{2}°$ of esophoria. The patient was then comfortable with his glasses, and I did not deem it wise to make any change in them; but I told him it might soon become necessary to take away the prism which had been placed before the left eye. Shortly after this he left the city to accept a position at Bowdoin College, Maine, and not long afterwards finding his eyes less comfortable he visited, at my sug-

gestion, Dr. E. E. Holt, of Portland, who found the relative strength of the external recti muscles so changed as to induce him to reverse the position of the lens which I had given for the left eye, so as to place the base of the prism in; and, at last accounts, this change seemed to have been of advantage.

The following case is of interest only as showing how high a grade of esophoria may exist in exceptional instances without the development of squint, this feature of the case being the more remarkable in view of the fact that the eyes, as will be seen, were appreciably different in focus.

CASE IV.—Mrs. L., æt. 51 years, complained of headaches, asthenopia and poor vision. Both optic discs were found to be very hyperæmic, and well-marked choroid-retinal changes were discovered in the lower part of the fundus of each eye. She was using as reading glasses, $+{}^{1}/_{12}$ s., but had never worn any glasses in distant vision. With the cover test the excluded eye squinted strongly inward in both distant and near fixation, but a rapid movement of correction followed as soon as the eye was uncovered. With the ametropia uncorrected (as in distant vision it always had been) the Graefe test showed at 20′ between 23° and 24° of esophoria, and at 13″, 12°. She was found to have compound hypermetropic astigmatism, against the rule, with anisometropia, and glasses were prescribed for distant vision as follows:

L. eye, $+{}^{1}/_{7}$ s.$=-{}^{1}/_{15}$ c. ax. 90°.

R. eye, $+{}^{1}/_{9}$ s.$=-{}^{1}/_{24}$ c. ax. 85°.

With these V. $={}^{20}/_{XX}$ was obtained, and the esophoria, with the test object at 20′, was reduced to 4°. For near vision the same cylinders were combined with $+{}^{1}/_{5.5}$ s. for the left eye, and $+{}^{1}/_{6.5}$ s. for the right, which enabled her to read J. No. with ease. When the patient was last seen a sufficient time had not elapsed to enable me to judge of the effect of the glasses, but they gave promise of affording the relief which I anticipated from them.

A CASE OF SARCOMA OF THE IRIS IN A CHILD TWO YEARS OLD.

BY ADOLF ALT, M. D.

A. S., æt. 2 years, the daughter of healthy parents, was brought to my office on January 6, on account of an affection of the right eye of apparently a little more than four weeks' standing. She had been under the treatment of the family physician who now transferred her to me. According to the father's account the child had always been well until within about six months, when she began to scream out in the night and otherwise to sleep restlessly.

Status præsens.—R. E., has a dull appearance. There is barely a roseate tinge in the neighborhood of the corneo-scleral junction. The very small pupil is bound down to a cataractous lens. The chief interest is centred on the condition of the iris. This membrane has a nodulated, swollen appearance, and, although the anterior chamber seems in consequence shallow, it is possible to see into the depth of the iris tissue, as if its anterior layers were of a gelatinous character. There are a number of nodules; two especially large ones lie in the lower outer quadrant. Tension is normal. The incisors are notched, but I fail to detect any swollen glands. L. E., normal.

My first thought was that I had to deal with an iritis due to congenital syphilis. My inquiry, however, led to absolutely negative results. I have since heard from the family physician, that the mother had four healthy grown children by the first husband, while of four children with the present, her second, husband, who is a picture of health and manly strength, two died early, and one was still-born. This last named one

had a large tumor on the left side of the head and neck which, however, was never examined histologically.

In spite of all assurances, and appearances to the contrary, I prescribed mercurials, and instillations of atropine, and kept the child under observation.

This treatment had no visible influence whatever on the child's eye affection.

In the following weeks the swelling of the iris increased, and the tension remained mormal, until one day the largest nodules in the iris showed evidences of parenchymatous hæmorrhage. Still, although I had hinted to the father, that we might have to deal with an intraocular growth, I did not yet feel warranted in urging the enucleation of the eye, awaiting a more decided increase of tension. All this time I thought, that I had probably to do with a glioma of the retina.

On January 20, the little patient was again brought to see me after a particularly restless night. There was now considerably more episcleral injection and there were two staphylomatous elevations of the scleral tissue in the ciliary region at the nasal side of the eyeball, that is, opposite to the largest nodules in the iris. The swollen and nodulated iris still had that gelatinous, semi-transparent appearance mentioned above. +T2.

These conditions now prompted me to urge immediate enucleation, as I felt certain I had to deal with a glioma, which had invaded the iris and was getting ready to break through the sclerotic. The parents at once consented, and on the 21th of the same month the enucleation was made. The operation, and the healing process after it, passed off as usual.

After proper hardening I divided the eyeball in two and saw to my astonishment, that. instead of being the seat of a glioma, the retina was perfectly normal.

The new formation concerned almost exclusively the iris; the ectatic portions which had been seen in the sclerotic, were not caused by the spreading of the tumor into this membrane, but were evidently solely due to the increased pressure which acted upon inflamed sclerotic tissue.

On microscopical examination the tumor which involved the whole of the iris and was nodulated, was found to be a round-cell sarcoma. It had evidently had its origin in the loose parenchymatous tissue of this membrane, and was as yet bounded backward by the partly destroyed uveal layer and forward by the dense connective tissue forming the anterior layer of the iris. The latter perhaps explains the semi-transparency of the tumor.

SOME EYE-AFFECTIONS SEEN AS SEQUELÆ OF THE GRIPPE.

BY ADOLF ALT, M. D.

Although the grippe has hardly been as severe in St. Louis as it has appeared in other cities, the number of its victims has been very large.

In a limited number of cases I have had occasion to see eye-symptoms which came on during the period of convalescence from the grippe, and for which the grippe was the only known cause.

The simplest affection was a hyperæmia of both the bulbar and the palpebral conjunctiva combined with slight chemosis. The condition usually came on over night and disappeared without interference after two or three days.

A more serious affection was an acute conjunctivitis with chemosis and œdema of the lids to such an extent, that when I saw the first case of this kind I surely thought I had to deal with a gonorrhœal infection. This affection also came on during the night, the patients getting up in the morning with a red, swollen and painful eye. Strange to say, although the upper lid was the seat of an enormous œdema, the chemosis and hyperæmia of the conjunctiva was much worse in the lower half of the eyeball. In some cases small hæmorrhages took place in the subconjunctival or episcleral tissue, similar to what we see in gonorrhœal conjunctivitis. The affection, however, differed very materially from gonorrhœa, as there was hardly any discharge and but little discomfort. Ice applications and the frequent instillation of a solution of bichloride of mercury, quickly reduced the symptoms. No serious complications have come under my observation.

In one instance a gentleman called upon me after having gone through a severe attack of the grippe, on account of "partial blindness." The patient was very weak and labored under an extreme degree of lassitude. On ophthalmoscopic examination I found ischæmia of the retinæ as the cause of his visual trouble. With proper stimulation he soon improved and got well.

In the last case I have seen, an insufficiency of the internal recti muscles was developed after an attack of the grippe of unusual fierceness. The patient, a lady, æt. 37 years, positively asserts, that she has never had any of the attending symptoms before having fallen a victim to the epidemic.

TRANSLATION.

OZÆNA AND THE INFECTIOUS ULCERS OF THE CORNEA.

BY DR. E. VON MILLINGEN, CONSTANTINOPEL.

When reading the observation of Dr. Trousseau, in the *Archives d'Ophtalmologie*, 1889, p. 270, I was reminded of having often seen affections of the eye which I also attributed to the presence of ozæna. I have often taken occasion to present such cases before the students in my clinic; moreover, in a paper of one of my assistants, Dr. Ternan (*Ophthalmic Review*, May, 1889, p. 129), may be found the description of the procedures I employ in cases of keratitis accompanying trachoma and complicated with ozæna.

Mr. Trousseau's interesting article has encouraged me to extract from my journal all the notes of cases of keratitis, caused by ozæna or chronic atrophic rhinitis, which I have observed since 1880. An analysis of these cases prompts the following remarks:

All cases of keratitis ulcerosa which occur in a patient suffering from ozæna have an irregular course and prove very rebellious to the ordinary modes of treatment. I think it is certain that there are distinct forms of conjunctivitis and keratitis which only occur in subjects suffering from ozæna.

The conjunctivitis which accompanies ozæna is distinguished by its very chronic character, and by the inefficacity of the local remedies applied in order to cure it; there is seldom an abundance of discharge; there is rather a hyperæmia of the ocular and palpebral conjunctiva; mostly there is increased lachrymation and excoriations in the angles of the palpebral fissure; there is more or less discomfort and conjunctival asthenopia. The ocular conjunctiva is from time to time the seat of acute phlyctænulæ, which are often infiltrated and complicated with episcleritis. These phyctænulæ appear mostly on

the limbus corneæ, and are not slow in encroaching upon the cornea itself. They are from the beginning large, elevated above the tissue in which they start (ulcus elevatum), and going over into suppuration they form more or less deep and destructive ulcers.

The pressure of the finger exerted through the lid upon such a phlyctænula in the progressive stage gives the patient considerable pain, which is shown by the rapidity with which he retracts his head. Aside from this pain on pressure, the patients complain of severe periorbital pains. It is just this very acute character which is but rarely wanting when we have to deal with phlyctænulæ caused by ozæna. They are very rapidly reproduced and follow each other in a manner that renders them a continued source of suffering to the patient.

The phlyctænulæ leave their traces on the limbus of the cornea in the shape of small white points of fine linear streaks resembling the very fine delicate scars which are produced by a slight traumatism, like an abrasion.

The ocular conjunctiva near the limbus loses its transparency in old cases, especially where there has been a series of confluent phlyctænulæ.

The corneal ulcers caused by ozæna lie by predilection upon or near the limbus corneæ, and have the tendency to perforate the cornea, and to cause prolapse of the iris.

The cases of panniform ulcerating or simple keratitis which accompany trachoma are much more rebellious to treatment when they are combined with putrid ozæna; the treatment of the nose cannot be dispensed with in order to cure these cases.

Dr. Trousseau thinks it possible that after cataract extraction the flap might become infected in patients suffering from ozæna. I should like to relate here a case of partial suppuration of the flap after extraction in a patient suffering from ozæna, and who certainly would have lost the eye totally if the danger had not been recognized in time. The case was that of a Turk called Hassan, æt. 45 years, very strong and in the best condition to be operated upon with success for cataract in both eyes. Since in this patient the ozæna was not diagnosed when he entered the clinic, the left eye was operated

upon on October 15, 1888, by von Graefe's method. The conjunctival sac and the eye were disinfected before and after the operation by a sublimate solution of 1 in 5,000.

The instruments were immersed in boiling water, and the eye was bandaged with sublimated cotton. The operation was performed under cocaine anæsthesia (cocaine dissolved in a sublimate solution of 1:5,000), and was in no way abnormal; the pupillary area was easily and totally cleansed from cortical substance, so that I did not look for anything but a rapid and perfect healing. This, however, was not the case. The first visit on the next day after the operation I found a mass of discharge on the cotton; the lids and the ocular conjunctiva were slightly œdematous; the cornea had lost its lustre all over its surface, was "punctuated" as in diffuse keratitis, and traversed here and there by vertical stripes (keratitis in stripes). The pupil was yet sufficiently visible to make sure there were no synechiæ and a good dilatation. The conjunctival flap was swollen, yellowish and looked croupous. In its neighborhood and all along it, the cornea was infiltrated, and showed all the signs of the beginning of an infectious suppurative keratitis, which promised to progress rapidly.

My astonishment at this pitiful condition of things found a sufficient explanation when, on approaching the patient, I perceived the characteristic smell of ozæna. The patient was carried to the operating room, and after having cocainized the eye, I ran the galvano-cauter over the whole course of the wound. The conjunctival flap was totally destroyed, and I pushed the point of the instrument as deeply as possible in between the lamellæ of the cornea, which were already affected by suppuration. Then I disinfected the eye and the nasal cavity by sublimate irrigation.

October 17.—Cornea in the same condition; the infiltration has in no way progressed. Less discharge, less œdema. The anterior chamber is refilled.

October 18.—The cornea is beginning to clear up. The progress of suppuration is entirely arrested. The irrigation of eye and nose continued. Atropine.

October 22.—The bandage is removed.

October 28.—No irritation; the cornea looks still dull, and the vertical stripes can still be seen.

November 1.—V.=$^{3}/_{LX}$.

December 1.—V.=$^{4}/_{LX}$.

On March 20, 1889, I operated on the right eye, after antiseptic treatment of the nasal cavity, with perfect success.

It is well known that the lachrymal ducts are often affected in consequence of ozæna, and I would like to refer here to the atrophy of the mucous membrane of the lachrymal drainage apparatus found in patients suffering from very chronic ozæna, in which the sac becomes quite large and filled with air, although there is no obstruction of the lachrymal duct. When the sac is pressed upon a crepitating noise is perceived, and bubbles of air escape through the canaliculi.

It seems that the atrophy of the mucous membrane of the nasal cavity extends through to the lachrymal sac. The patients do not seem to suffer from this condition.

In certain patients suffering from ozæna, when there is no organic lesion of the eye and its annexes, and no error of refraction (especially in females), I have observed a very disagreeable asthenopia which rendered reading and needle-work impossible. This asthenopia, which had lasted for a long time and could not be improved by any treatment, disappeared as by magic as soon as the patients had their nasal cavity treated by abundant irrigations with lukewarm solutions of sublimate 1:10,000. All of these patients suffered from very fetid ozæna, with dryness of the vault of the pharynx, and hoarseness.

I came to the following conclusions:

1. Ozæna is often the cause of diseases of the lachrymal drainage apparatus.

2. Ozæna is very frequently the cause of characteristic affections of the conjunctiva and cornea.

3. Ozæna may cause suppuration of the flap after cataract extraction, and in consequence the patients, before being operated on, should be submitted to an examination of the nasal passages.

(Here follow the data of 33 cases.)

SOCIETY PROCEEDINGS.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Stated meeting, Thursday, January, 1890, J. Hughlings Jackson, M.D., F.R.S., President, in the chair.

Glaucoma after Extraction of Cataract.—Mr. Treacher Collins read this paper, in which he described the conditions found in ten eyeballs excised after sight had been destroyed, and which he had examined microscopically. In nine cases the cataract was the ordinary senile form; in one case it was of traumatic origin. Five of the patients had undergone successful operation for cataract. The interval which elapsed between the extraction and the onset of the glaucoma varied from three to twenty-one months. In three cases the increase of tension came on simultaneously with iritis and keratitis punctata, and in these patients the second eye became affected with sympathetic ophthalmitis. In nine of the eyes there was adhesion of the lens capsule to the extraction scar; in the remaining one, in which the lens had been removed in its capsule, the hyaloid was adherent to the corneal cicatrix. In all the specimens the angle of the anterior chamber in the part corresponding to the coloboma of the iridectomy was blocked, either by adhesion of the root of the iris, which had been left, or by the tips of the ciliary processes, dragged forwards by entangled lens capsule. After enumeration and discussion of the various causes to which glaucoma after extraction might be ascribed, Mr. Collins said he thought, from the study of these cases, that the adhesion of the lens capsule to the corneal cicatrix strongly predisposed the eye to an attack of glaucoma; in some cases this

adhesion, combined with an entanglement of iris, was sufficient to set up glaucoma; in others some additional irritation was necessary, such as resulted from a discission operation. The treatment of these cases was, in his experience, very unsatisfactory. In only one he had seen the glaucoma permanently relieved by operation; in that case iridectomy and capsulotomy were performed after paracentesis of the anterior chamber had failed to relieve tension. Mr. Collins exhibited microscopic specimens of the eyeballs, and showed some excellent magic lantern slides made from photographs of microscopic sections.

Mr. Critchett said the needle of discission of the capsule after cataract extraction should be graduated, so as not to allow the escape of aqueous humour. Many eyes were undoubtedly lost after cateract extraction, but that they should be destroyed by glaucoma was to him surprising, seeing that such cases should be under the direct observation of the operator, so that the condition ought to be at once relieved.

Mr. Priestley Smith said that Mr. Collins' paper was of much value, as it supplied accurate anatomical information on the subject with which it dealt. He regarded these cases as belonging to the category of secondary glaucoma. In primary glaucoma he was accustomed to regard the lens as taking a very prominent part, but the occurrence of the condition in the absence of a lens was against that view. He alluded to one class of cases not included in this series—namely, glaucoma after successful needling operations, in which there was a clear central pupil with no visible adhesions, yet *iris bombée* occurred, no doubt on account of adhesions between the lens capsule and iris. In cases such as Mr. Collins described, sclerotomy was effectual if care was taken to divide the septum between the vitreous and aqueous chambers. In a case where sclerotomy was succeeded by but slight escape of fluid, a second incision, dividing this septum, was followed by a gush of fluid, and complete relief of tension. He would like to know if any case of glaucoma was known after a satisfactory extraction. In the case of a medical man, upwards of 80, an abso-

lutely straightforward operation, followed by a contusion of the eye, resulted in great pain with increase of tension at night—probably due to swelling of the vitreous. An incision was made in the membrane across the center of the pupil; there was slight return of the glaucoma, but the eye subsequently recovered perfect vision.

Dr. Hill Griffith (Manchester) cited four cases in which glaucoma came on after extraction of the lens. In one, high tension followed the removal of an opaque lens; in another, after an ordinary extraction in which much cortex remained; a third was followed by iritis; in the fourth acute glaucoma with haziness of the cornea, the condition seemed to be instantly relieved by free discission. The tension, however, returned twice; but, after sclerotomy and then iridectomy, there was fair sight. For the most part glaucoma followed some complication; it had been more than usually disastrous of late after interference with immature cataracts. He thought the escape of vitreous might be the cause of glaucoma, by mixing with the softened cortex and forming a paste round the margin of the anterior chamber.

Mr. McKinley thought the present observations were much in favor of preliminary iridectomy. This step was well under control, whereas other parts of the extraction operation were not so. The excision of the iris should be clean, and to the base; afterwards, a corneal section was of less moment.

Mr. Silcock had known glaucoma after removal of an immature cataract cured by iridectomy. In one case, where the capsule was entangled, the removal of a further portion of iris by a second operation was successful.

Mr. Collins, in reply, admitted the correctness of Mr. Critchett's remarks about the needles. The stout cylindrical needles were thought to cut better and to enter particularly well, but they permitted the escape of the vitreous, and had been discarded at Moorfields. In two cases where sclerotomy had failed to relieve glaucoma, the incison had not been peripheral enough, and the ciliary processes blocked the iris angle. In answer to Mr. Priestley Smith's question with reference to

glaucoma after satisfactory extraction, Mr. Collins said that it was very difficult to see entangled capsule, and still more so to detect entangled hyaloid of vitreous. Such accidents might explain the occurrence of glaucoma after apparently satisfactory extraction. The success following division of the septum between the aqueous and vitreous chambers alluded to, was consistent with this view.—*Brit. Med. Jour.*

NEW YORK ACADEMY OF MEDICINE.

Stated meeting, December 17, 1889, Dr. R. C. M. Page in the chair.

Eye Symptoms as Aids in Diagnosis,

Was read by Dr. D. C. Cooks. It was the speaker's purpose to bring to notice an outline of the more important facts about he eye and its diseases, a knowledge of which was essential or helpful in diagnosis. Epiphora was at times the first symptoms of facial paralysis; the orbicularis failed to keep the puncta in contact with the globe, allowing the tears to flow over the cheek. In acute inflammation of the lachrymal gland there was frequently an attending fever, but the presence of the localized swelling and pain sufficed to make known the cause of the febricula. The presence of dacryocystitis indicated something more than a localized inflammation. It pointed to obstruction in the canal or sac, and was most frequently caused by neglected nasal catarrh. Excluding this, exostosis and periostitis, the result of syphilis was probably the cause of the trouble. Where the inflammation persisted in spite of the judicious treat ment, other constitutional troubles would be found to account for it. Herpes zoster ophthalmicus was pathognomonic of changes, probably inflammatory, in the fifth nerve and Gasserian ganglion. The condition was frequently mistaken for erysipelas. The situation of the vesicles on one side o the

head over the distribution of the fifth nerve and the persistent pain should prevent such a mistake. The well-known symptoms of Bright's disease, morning œdema of the lower lids should not be overlooked. The reddened margin of the lids, blepharitis marginalis, indicated a lowered condition of the general health, or an error of refraction. Ptosis by itself might mean pressure from syphilitic deposits or rheumatic swellings.

Exophthalmus was pathognomonic of Graves' disease. When this condition was limited to one eye it might be caused by tumors of the orbit, syphilitic periostitis, or even an orbital hæmorrhage from whooping-cough. Exophthalmus had been known to follow an injury of the head. Where a patient complained of headache, nausea, vomiting, or pains through the temple or eyes, there should be an examination to know whether there was perfect harmony existing between the ocular muscles. The correction of insufficiencies by prisms or tenotomies would often give an entirely new aspect to cases that were formerly obscure. When all of the external muscles of the eyes were paralyzed we had ophthalmoplegia externa —a disease not of the eyes, but of t central nervous system, affecting the nuclei of the third, fourth and sixth nerves. A recurring paralysis of the third, fourth or sixth nerve was frequently the first indication of posterior spinal or of general sclerosis. Very often the first symptom of basilar trouble or intracranial disturbance was evinced by the paralysis of one or more of the ocular muscles. The progress of growths could often be watched by successive muscles becoming involved and the exact location of such neoplasms acurately marked out. Phlyctenular conjunctivitis was almost always indicative of lowered vitality, of eye strain or bad hygiene. Chronic conjunctivitis had about the same significance, but was also associated with nasal or pharyngeal catarrh. Phlyctenular keratitis occurred under about the same conditions as the two preceding diseases. Interstitial keratitis always indicated constitutional trouble. The great majority of these cases occurred in persons under twenty—usually from five to ten—and were symptomatic of congenital syphilis. The presence of keratitis

with hypopyon indicated infection from some quarter, possibly from nasal catarrh, dacryocystitis, or carious teeth. In cases where the cornea sloughed away without pain or distress in old people, we might know their vital powers were much depressed and their blood-vessels probably atheromatous. If we found the cornea cloudy or ulcerated, the patient complaining of no pain or photophobia, we had a keratitis due to lesion of the fifth nerve. Scleritis and episcleritis rarely occurred except in rheumatism or the rheumatic diathesis. Iritis might be due to hereditary, secondary, or tertiary syphilis. It might be due also to malaria, gonorrhœa, variola, rheumatism or gout. The speaker had recently reported a case of tubercular iritis in which the tubercle bacilli were demonstrated. An examination of the patient, a small child, showed the presence of a phthisical process in progress within the chest. In the first stages of pachymeningitis hæmorrhagica the pupils were, as a rule, contracted, and most markedly so on the side of the hæmorrhage. Myosis existed in the early stages of acute meningitis, and with the other symptoms gave valuable aid in its early recognition. The Robinson pupil was almost always associated with posterior spinal paralysis. When the cervical sympathetic was irritated by pressure of some growth, moderate myosis might call attention to the lesion; the accommodation was not affected. In complete paralysis of the third nerve there was mydriasis and paralysis of accommodation. Unequal pupils was one of the first symptoms of general paresis. One should be always on guard not to mistake the mydriasis of atropine for that of disease. The existence of mydriasis, together with other symptoms, might clear up a doubtful case of tumor cerebri or of syphilitic trouble of the base, or be indicative of a fracture through the apex of the orbit. Headaches not yielding to ordinary means might be due to weakness of the ciliary muscle. These cases were many times cured by being properly fitted with glasses. The ophthalmoscope should be in the hands of the general practitioner. The interior of the eye, aided by the mydriasis of cocaine, could readily be examined. A chorioiditis of the macula of each eye, together or

consecutively, attended with dust-like specks in the vitreous, was not infrequently met with, and was almost pathognomonic of syphilis, congenital or acquired. Its early recognition was of the utmost importance to the patient; if neglected, central vision was apt to be lost. In regard to the normal fundus, its negative value in diagnosis could only be appreciated by those who were accustomed to look to the ophthalmoscope as an aid in diagnosis. A rapidly forming or soft cataract might be the first symptom that attracted attention to the presence of diabetes mellitus. The presence of a soft opaque lens with a scar in the cornea, while proving that an injury had been inflicted, might also indicate the presence of a foreign body in the eyeball, which would require immediate attention. The most interesting part of the subject was the light thrown on intracranial changes and on general diseases by changes in the retina and nerve. The neuro-retinitis of Bright's disease produced changes in the region of the macula, which were pathognomonic. Optic neuritis, especially if double, was of the greatest importance as an aid to diagnosis in intracranial troubles. Atrophy of the optic nerve was one of a series of symptoms which might prove the previous existence of cerebro-spinal meningitis, basilar meningitis, growths in this same region, alcoholism, or fracture of the base of the skull with involvement of the apex of the orbit. At times, on examining patients who complained of failure of vision, a central scotoma for red was found; this was almost pathognomonic of tobacco poisoning. Night blindness occurred in commencing atrophy of the optic nerve and retinitis. Word blindness accompanied as a rule lesion of the cortex cerebri. Acquired partial or complete color blindness was indicative of nerve atrophy. For practical purposes the field of vision could be tested by the hand moved into different parts of the field while the patient kept the eye fixed on the face of the examiner. Limitations of the field were found in optic atrophy and glaucoma; in these conditions the fields were irregular and contracted. When monocular hemiopia existed, the condition was probably one of intraocular lesion; if binocular, intracranial lesion was certainly present,

the lesion being along the optic tract or in the occipital lobe of the same side as the loss of vision. In acute Bright's disease patients occasionally became suddenly blind without a lesion of the fundus. The difficulty was evidently central and due in all probability to an œdema of the centers for vision. This condition could be distinguished from the loss of sight in albuminuric retinitis. Acute glaucoma was sometimes mistaken for a billious attack of hemicrania,and chronic glaucoma for incipient cataract. The increased tension of the eyeball, the dilated and immobile pupil, the limited range of accommodation, and the contracted fields would soon settle the diagnosis without the aid of the ophthalmoscope, were those signs looked for. The speaker closed his remarks with the hope that this brief glance at the aids which the eye gave to the general practitioner in diagnosis would stimulate each one to a renewed sense of responsibility and interest in this most interesting field.

Dr. H. D. Noyes, after going over the various clinical points covered by the author's paper, warmly indorsed the opinion that the general practitioner should familiarize himself with the routine of the examination.

Dr. Weeks said that while it was of course not incumbent upon the general practitioner to make himself familiar with all the details of minute changes in the interior of the eye, which was the study of years, still there were certain gross changes and conditions which he ought to be able to look for and the importance of which he should know how to appreciate, and the recognition of which would often result in very great and immediate benefit to patients.

Dr. W. F. Mittendorf thought that with the perfect instruments now at command there was no excuse for any general practitioner who professes himself unable to examine the interior of the eye. Medical students could be taught to do this fairly well in one lesson.

Dr. A. H. Smith referred to a case, which he said Dr. Noyes would also remember well, in which a gentleman had been suffering for a number of years from a trembling of the right hand

and paresis of the right leg. Associated with this was a pain in the occipital region, brought on, it was assumed, by excessive use of the eye. On this latter point the speaker had consulted Dr. Noyes, who had prescribed glasses which had relieved almost entirely the occipital pain, and had to a great degree favorably influenced the trouble in the leg and to some extent that of the trembling of the hand.

Dr. T. M. Pooley said that it had not been his experience that atrophy of the optic nerve was a common occurrence in spinal meningitis. One serious eye symptom which was of importance in reference to general disease was that of intraretinal hæmorrhage, such as occurred, for instance, in general pernicious anæmia. This took place frequently when the arteries were diseased from any cause or where there were general structural changes, as in syphilis. Where these retinal hæmorrhages were observed the changes which were taking place were often considerable, and hæmorrhage might be expected to occur elsewhere and was quite likely to be intracranial. He thought many of the cases with slight degree of insufficiency of the ocular muscles would get well if left to themselves or taken from the domain of the specialist and the patients treated by a qualified general practitioner with a view to improvement of the general health.

The Chairman said that a case had come under his notice about a year ago which illustrated admirably the utility of the observance of retinal hæmorrhage as denoting the progress of disease. A patient of his who was suffering from Bright's disease, and was also complaining a little of some defect in eyesight, was making preparations to go South. The speaker called in Dr. Webster, who, on making examination, discovered retinal hæmorrhage. The patient's friends were informed of his condition and told that he might die of apoplexy at any moment. Death from this cause had taken place within 24 hours. This was a very fair instance where the simple examination of the retina supplied such information as rendered the prognosis most grave and enabled due notification of the facts to be given to the patient's family.—*N. Y. Med. Jour.*

SELECTIONS FROM AMERICAN MEDICAL JOURNALS.

EXTRACTION OF CATARACT.[1]

BY JOHN B. ROBERTS, M.D.

As ophthalmological subjects are very frequently presented for the consideration of this Society, I venture to bring forward for discussion the Extraction of Cataract, because it is one of the most important topics with which ophthalmologists have to deal, and because it will be interesting and instructive to me to hear described the methods of operation adopted by other ophthalmic surgeons of this city.

I shall simply give you a brief outline of the steps of the operation in my hands, and report the cases upon which I operated from June 1, 1888, to May 1, 1889. As I was absent during the two summer months, it represents the work of nine months' private practice. Although these cases are not very numerous, being only some twelve or fourteen cataracts in all, they are sufficient to illustrate the points which I desire to bring forward. It must be remembered that they are reports of cases occurring in the ordinary run of my ophthalmic and surgical practice, and not the voluminous hospital records of one occupying the position of ophthalmologist in a hospital or college.

In preparing the patient for operation, I cleanse the face in the vicinity of the eyes with soap and water, and subsequently with a solution of boric acid or corrosive sublimate. I then

[1]Read to the Philadelphia County Medical Society, Stated Meeting, Oct. 23, 1889.

wash out the conjunctival sac with a boric acid solution, instilled with an ordinary pipette. The instruments are kept in a similar solution of boric acid, which is made without any great accuracy as to strength. A few drops of a 4% solution of hydrochlorate of cocaine are dropped into the eye two or three times during the quarter of an hour preceding the operation. A few drops of a four-grain solution of atropia are also instilled. Even before the use of cocaine was known, I did not give anæsthetics, because experience has shown me that the operation for the extraction of cataract is not painful, if the surgeon, by previous manipulation of the cornea and lids, teaches the patient to hold perfectly quiet. This can be done with almost all patients whom we meet, unless it be some one who is exceedingly nervous. A great deal of the advantage to be derived from this preliminary training depends upon the conduct of the surgeon, who can readily encourage and teach his patient to stand the slight pain due to cataract extraction, if he shows by his own actions that he is sure of himself. A nervous, bustling, fidgety surgeon is incompetent to perform ophthalmic operations.

At the present time it is, of course, needless to subject the patient to even this slight amount of pain, since cocaine anæsthesia is all sufficient, and exerts no deleterious effect upon the subsequent progress of the case. The steps of the operation, as I perform it, are as follows:

Having grasped the conjunctiva and the inferior rectus with a pair of fixation forceps, I make an upward incision in the cornea with a Graefe, a Beer, or a Jackson knife. I usually prefer the Graefe to the Beer knife. I have not had sufficient experience, as yet, with the Jackson modification to be sure whether I prefer it to the others. I must admit, however, that I have been favorably impressed with its value in making an incision in such a manner as to prevent the escape of the aqueous humor and prolapse of the iris.

The iridectomy which I always make is accomplished by catching and drawing out the iris with the iridectomy hook in the left hand, and cutting it with the Levis spring—scissors in

the right hand. I do not use the iris forceps for making the iridectomy, unless it happen that, for some reason, a portion of the part excised has not been perfectly detached from the iris. I then use the forceps to catch the ragged edges while making a second attempt at complete division.

Laceration of the capsule is done by making a T-shaped incision with a cystotome. Usually I make the horizontal cut of the T across the upper edge of the capsule as a first step, and subsequently make a median vertical slit by another movement. I have, however, on more than one occasion, slit the capsule with a single vertical stroke of the cystotome. The lens is then extruded by pressure upon the sclerotic and cornea, with the finger above and a tortoise-shell scoop below the incision. The finger makes the pressure upon the outside of the upper lid. If there is any difficulty, as there often is, in evacuating the soft cortical material or nucleus, I introduce the spoon and extract these remnants. In the event of it being the nucleus which is not properly detached, I often use the wire loop to make traction upon it.

After a few minutes have elapsed to allow reaccumulation of the aqueous humor, I let the patient sit up with his back to the light and place before the eye which has been operated upon a convex lens of about nine dioptrics, in order that I may prove to him that vision has been restored. By allowing the patient to look about the room and to count my fingers, I give him confidence in the result of the operation; and it greatly encourages him during the stages of convalescence to know that he has actually seen with the eye previously blind.

After instilling a few drops of the atropia solution, I seal the eye by means of two or three small strips of ordinary rubber plaster upon the upper lid. These strips of plaster are cut in the shape of a semi-ellipse, and are made to fit the upper lid, but under no circumstances are they to overlap the lower lid. In this manner the upper lid is made stiff, and acts as a splint to the wounded cornea. I have never used any other means of dressing after cataract extraction, nor have I ever seen any

other method used in the practice of Dr. Levis during the last fifteen or sixteen years.

The advantage of this method is that the eye is not heated, and tears and mucus can drain from between the lids, and the atropia solution can be introduced into the conjunctival sac every morning or evening, as the surgeon may deem proper. Before the operation I cut off the eye-lashes of the upper and lower lids, to prevent the eye becoming sealed by the dried secretion upon the lashes, which gives the patient pain, and has a deleterious effect upon the eye by interfering with the free flow of tears and mucus.

This method of dressing after the extraction of cataract is preferable, I am sure, to the one frequently employed, but which ought to be obsolete, namely, that which covers the eye with a mass of cotton, thus damming up the secretions and causing irritation and congestion. The effect of covering the eye can readily be seen by closing one's own eye with cotton and a bandage for twenty-four or thirty-six hours. As a rule, I close only the eye which has been operated upon. I do not restrict the patient to a dark room, nor do I confine him to bed.

Inspection of the cases below will show, I think, that no ill effects are produced by making the patient comfortable in this way. The habit, adopted by so many, of sealing both eyes and keeping the patient in absolute darkness for ten days or two weeks, is a relic of traditional surgery, and adds greatly to the discomfort of the patient. If the surgeon assures him that the operation is not painful, and that he will not be confined to a darkened room, the patient will be much more likely to submit to an early operation, and with a lighter heart.

I have brought forward these points as to the method which I have adopted in order to elicit discussion from the members of the Society. I think that the results of the cases appended will show that my patients get well more quickly after this manner of operation and subsequent treatment than by other methods. I have often been surprised at the low amount of vision which seems to satisfy some operators. If I have an

uncomplicated senile cataract to deal with, I look forward with almost perfect confidence to a restoration of vision, of at least two-thirds of the normal.

Occasionally it is necessary to do a secondary needle operation, to get rid of the thin veil-like secondary cataract due to the posterior capsule and to shreds of lymph. I am convinced that the bad results which frequently occur after cataract extraction are due not so much to the seriousness of the operation as to want of proper manipulative skill on the part of the operator, and to errors in the methods of dressing the wound.

(Here follow the histories of 13 cases.)

Discusison.

Dr. George Friebis.—I did not hear the whole paper, but I wish to say, in corroboration of what has been said, that I think that the bad results are caused more by deficiencies of the operator than of the method of operation. During the past four months I have performed four cataract operations and sent the patients from the hospital. I was encouraged to do this by the fact that one patient, who was sent from the hospital immediately after operation on account of the presence of erysipelas in the wards, did perfectly well. In the last three cases the vision obtained has been, respectively, $^{20}/_{L}$, $^{20}/_{XL}$, $^{20}/_{L}$.

Dr. George C. Harlan.—I unfortunately did not hear the early part of the paper, and do not know what points were made. The points of most interest at the present time, in connection with this operation, are: the after-treatment, the use of antiseptics, and performance or non-performance of iridectomy. There is no doubt that the after-treatment has been much modified of late. The patients are not kept so long in bed, and the dressings are much simpler. A large proportion of careful surgeons still retain the compress bandage, but I know of none who keep it on two weeks. I think it well to use the bandage for two days, and to keep the patient in bed

two or three days. We do not now darken the room, but rely on the bandage to keep the sunlight from the eyes.

Our experience in antisepsis at Will's Hospital is not uncomplicated, and about the time we began the use of antiseptics we moved into the new wards. There has been, however, as the result of one or the other or both of these causes, a great improvement in results. Suppuration of the cornea has practically disappeared. Different agents are used by the different operators, but the results are substantially the same. The only ingredient used in common is distilled water, and that perhaps would do as well. As boric acid has been shown to be without antiseptic qualities, I have abandoned it, and am now using bichloride, 1:5000. Even in this proportion it causes some irritation of the conjunctiva.

The question of iridectomy is now the great point of discussion. There is a strong party in favor of omitting iridectomy in the operation for cataract. For myself I am quite satisfied, not only on theoretical grounds, but from reported results, that the greatest good to the greatest number of cataract patients is promoted by adherence to iridectomy. There are æsthetical and perhaps optical considerations in favor of a round pupil; but this disadvantage, which has been somewhat exaggerated, is dearly bought at the expense of the greater difficulty in accomplishing delivery of the lens and the removal of cortical *debris*, and particularly of the risk of prolapse of the iris. Alfred Graefe, at last year's meeting of the Heidelberg Society, said that he had allowed himself to be bewitched by the round pupil, but that prolapse of the iris had disenchanted him. I am not sure but that preliminary iridectomy should be performed. I believe that the safest cataract operation is that in which an iridectomy is done not less than one, preferably two or three months, before the extraction. This renders it more easy to avoid inclusion of the iris in the angles of the wound, hæmorrhage is avoided, and pain, with the restlessness and muscular spasm which result from it, is absent. Graefe used to advise that preliminary iridectomy should be done where the patient had only one eye, and a dis-

tinguished European authority admitted, a few years ago, that in the case of his own father he would do a preliminary iridectomy. If safer in these cases, it must be safer also in the case of a patient with two eyes, or somebody else's father. There are considerations of expediency opposed to the preliminary operation, but, where it is practicable, I should prefer it.

DR. B. ALEX. RANDALL.—I have thus far done iridectomy in all operations, as it facilitates egress of the lens. A small removal of tissue is generally sufficient, and, after it, I have secured a perfectly mobile pupil, almost as round and perfect for visual purposes as though no iridectomy had been done—the coloboma being thoroughly covered by the upper lid. The corneal section and the exit of the lens are also facilitated by the dilatation of the pupil, which is afforded by the cocaine more thoroughly than by atropine, while cocaine does not interfere with the subsequent action of eserine in contracting the pupil and preventing incarceration of the iris in the wound. I wish to emphasize the point that cocaine must be used with caution, since it affects the nutrition of the corneal epithelium; and our studies show that it is largely upon this epithelium that the healing process depends. It has been pointed out that sometimes, where bichloride of mercury has been used after cocaine, there will be opacity of the epithelium of the cornea, or even its exfoliation. As a wash, distilled water does not seem a good agent for use in these cases since its specific gravity is too low to make it unirritating. A solution of salt of boric acid would seem to be best. I am far from believing that boric acid has not powers of value in practical use. While in the laboratory it may be far inferior to other so-called germicides, yet it probably has greater value than might theoretically be expected, and I shall continue to use it until better evidence is forthcoming of the superiority of other agents.

DR. FRIEBIS.—The last speaker referred to the fact that cocaine should be used with caution. American operators, as a rule, have been fortunate in the use of cocaine. In some insti-

tutions it has been used almost indiscriminately without unfavorable result. Among English surgeons more or less septic infection has been traced to the use of cocaine tablets. So far as my experience goes, liquid preparations of cocaine have produced no unfavorable effects.

DR. ROBERTS.—While I am convinced of the value of antisepsis and asepsis, I am still of the opinion that in eye-surgery neither antisepsis nor anæsthesia is absolutely called for. I use them; but I do not think that I have gained so much from antiseptic measures in cataract extraction as in operations in general surgery. In seventeen years' experience in the practice of Dr. Levis and of myself, I have not seen, I think, more than one case of sloughing cornea after extraction. Anæsthesia I believe to be necessary only under the most unusual instances. Of cocaine we may indeed use very little, because we actually need none. The surgeon can, by preliminary manipulations, teach the patient to stand the slight pain of the iridectomy and extraction of the lens.

I had hoped that more would have been said with reference to the value of preliminary iridectomy and rubbing the front of an immature lens to hasten maturation. I did that with advantage in one case. In one case I extracted an immature lens. I had hoped to hear discussion upon these points.

The little wrinkle of clipping the eye lashes has been of service to me. I think pain is often caused by the lashes becoming glued together, preventing the escape of mucus and other secretions. In these cases, relief is often experienced when a spontaneous gush of tears take place, from the glued lashes finally giving way under the pressure of the dammed up fluid. Clipping the lashes prevents this damming in of secretion.

Instead of leaving one eye open being irrational treatment, it seems to me that the method of making pressure upon the operated eye with a bandage and compress, and closing the well eye, and keeping the patient in bed perfectly blind for several days is the height of irrational treatment. It injures the patient by causing depression and nervous irritation. The

eye recovers more rapidly because the patient is made happy by the sight of sunlight and of friends about him. The sealing of the operated eye encourages inflammation because of the imperfect drainage.

I would, therefore, emphasize the following points: That the bad results are often due, in the first place, to want of manipulative skill on the part of the surgeon; and, in the second place, to the erroneous method of dressing employed by many. Many blind men owe their blindness to the clumsy surgeon or his irrational dressing.—*Medical Progress.*